

Hardware User's Manual

Treadmill



References:

LE8700 (76-0303), LE8708 (76-0304), LE8715 (76-0305), LE8706 (76-0306),
LE8709 (76-0307), LE8710R (76-0308), LE8710M (76-0309)

Version:

1.0

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



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1. SYMBOLS TABLE

Recognising the symbols used in the manual will help to understand their meaning:

DESCRIPTION	SYMBOL
Warning about operations that must not be done because they can damage the equipment	
Warning about operations that must be done, otherwise the user can be exposed to a hazard.	
Protection terminal ground connection.	
Warning about a hot surface which temperature may exceed 65°C	
Warning about a metal surface that can supply electrical shock when it's touched.	
Decontamination of equipments prior to disposal at the end of their operative life	
Waste Electrical and Electronic Equipment Directive (WEEE)	

2. GOOD LABORATORY PRACTICE

Check all units periodically and after periods of storage to ensure they are still fit for purpose. Investigate all failures which may indicate a need for service or repair.

Good laboratory practice recommends that the unit be periodically serviced to ensure the unit is suitable for purpose. You must follow preventive maintenance instructions. In case equipment has to be serviced you can arrange this through your distributor. Prior to Inspection, Servicing, Repair or Return of Laboratory Equipment the unit must be cleaned and decontaminated.



Decontamination prior to equipment disposal

In use this product may have been in contact with bio hazardous materials and might therefore carry infectious material. Before disposal the unit and accessories should all be thoroughly decontaminated according to your local environmental safety laws.

3. UNPACKING AND EQUIPMENT INSTALATION



WARNING: Failure to follow the instructions in this section may cause equipment faults or injury to the user.


- A. For handling the biggest models of Treadmill , like LE8710 and LE8715 as they are heavy enough and the weight is not concentrated two persons are needed. Not following this advice can cause backache.
- B. Inspect the instrument for any signs of damage caused during transit. If any damage is discovered, do not use the instrument and report the problem to your supplier.
- C. Ensure all transport locks are removed before use. The original packing has been especially designed to protect the instrument during transportation. It is therefore recommended to keep the original carton with its foam parts and accessories box for re-use in case of future shipments. Warranty claims are void if improper packing results in damage during transport.
- D. Place the equipment on a flat surface and leave at least 10 cm of free space between the rear panel of the device and the wall. Never place the equipment in zones with vibration or direct sunlight.
- E. Once the equipment is installed in the final place, the main power switch must be easily accessible.
- F. Only use power cords that have been supplied with the equipment. In case that you have to replace them, the spare ones must have the same specs that the original ones.



- G. Make sure that the AC voltage in the electrical network is the same as the voltage selected in the equipment. **Never connect the equipment to a power outlet with voltage outside these limits.**



WARNING

For electrical safety reasons you only can connect equipment to power outlets provided with earth connections .

This equipment can be used in installations with category II over-voltage according to the General Safety Rules.

The manufacturer accepts no responsibility for improper use of the equipment or the consequences of use other than that for which it has been designed.

PC Control



Some of these instruments are designed to be controlled from a PC. To preserve the integrity of the equipment it is essential that the attached PC itself conforms to basic safety and EMC standards and is set up in accordance with the manufacturers' instructions. If in doubt consult the information that came with your PC. In common with all computer operation the following safety precautions are advised.

- WARNING**
- To reduce the chance of eye strain, set up the PC display with the correct viewing position, free from glare and with appropriate brightness and contrast settings
 - To reduce the chance of physical strain, set up the PC display, keyboard and mouse with correct ergonomic positioning, according to your local safety guidelines.

4. EQUIPMENT INSTALLATION



WARNING: Failure to follow the instructions in this section may cause equipment faults or injury to the user.


- H. Place the equipment on a flat surface and leave at least 10 cm of free space between the rear panel of the device and the wall. Never place the equipment in zones with vibration or direct sunlight.



- I. Make sure that the AC voltage in the electrical network is the same as the voltage selected in the equipment. **Never connect the equipment to a power outlet with voltage outside these limits.**



WARNING

For electrical safety reasons you only can connect equipment to power outlets provided with earth connections .

This equipment can be used in installations with category II over-voltage according to the General Safety Rules.

The manufacturer accepts no responsibility for improper use of the equipment or the consequences of use other than that for which it has been designed.

5. MAINTENANCE



WARNING: Failure to follow the instructions in this section may cause equipment fault.

- **PRESS KEYS SOFTLY** – Lightly pressing the keys is sufficient to activate them.
- Equipments do not require being disinfected, but cleaned for removing urine, faeces and odour. To do so, we recommend using a wet cloth or paper with soap (which has no strong odour). **NEVER USE ABRASIVE PRODUCTS OR DISSOLVENTS.**
- **NEVER** pour water or liquids on the equipment.
- Once you have finished using the equipment turn it off with the main switch. Clean and check the equipment so that it is in optimal condition for its next use.
- The user is only authorised to replace fuses with the specified type when necessary.

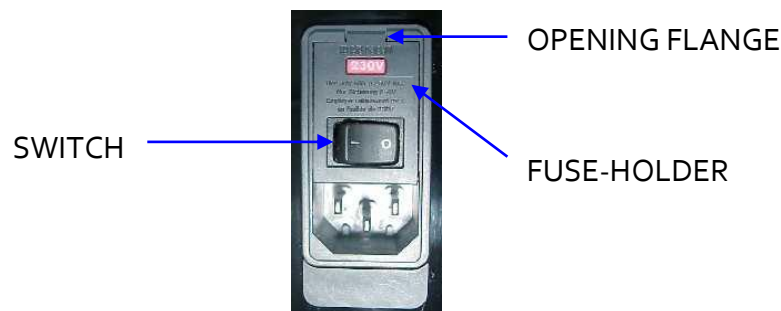


Figure 1. Power inlet, main switch and fuse holder.

FUSE REPLACEMENT OR VOLTAGE SETTING CHANGE

In case of an over-voltage or other incident in the AC net making it impossible to turn on the equipment, or if the equipment voltage setting is incorrect, check fuses according to the following procedure.

- 1 Remove power cord from the power inlet.

- 2 Open fuse-holder by pulling the flange with a regular screwdriver.

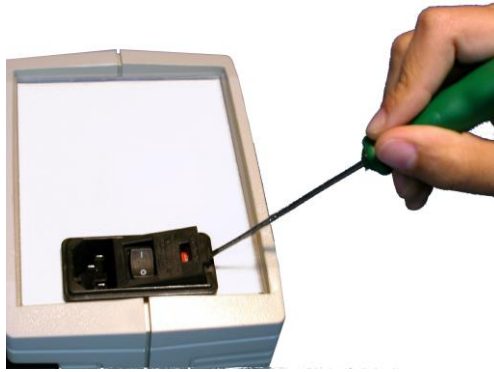


Figure 2. Open fuse-holder door.

- 3 Extract fuse holder using the screwdriver.

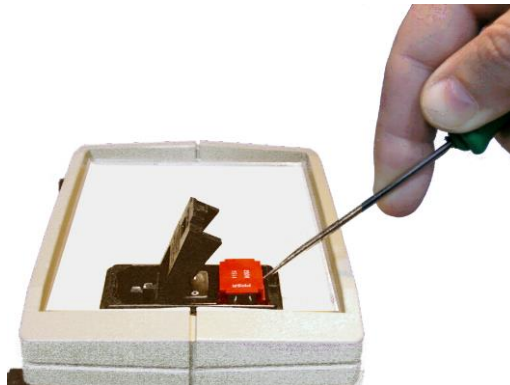


Figure 3. Extract fuse-holder.

- 4 Replace fuses if necessary. Insert fuses in the fuse-holder in the correct position.



CORRECT



INCORRECT

Figure 4. Fuses position.

- 5 Insert the fuse-holder again, positioning it according to the voltage in the AC net.



115V POSITON



230V POSITION

Figure 5 Fuse holder position.

- 6 If the fuses blow again, unplug the equipment and contact technical service.



For electrical safety reasons, never open the equipment. The power supply has dangerous voltage levels.

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7. INTRODUCTION

The LE 8700 Series of treadmills are used to study animal's motor function (mice, rats or rabbits). The following models are available:



Figure 6. LE8700 Treadmill control unit.

There are different models detailed in the following table:

REFERENCE	DESCRIPTION	MIN SPEED	MAX SPEED
LE 8700	One-lane rat treadmill with shock	5cm/s	150cm/s
LE 8706	Two-lanes rat treadmill with shock	5cm/s	150cm/s
LE 8708	One-lane mouse treadmill with shock	5cm/s	150cm/s
LE 8709	Two-lanes mouse treadmill with shock	5cm/s	150cm/s
LE 8710	Five-lanes treadmill with shock	5cm/s	150cm/s
LE 8715	One-lane rabbit treadmill	10cm/s	80cm/s

It consists of an exercise treadmill driven by a motor, the speed of which can be adjusted continuously from 5 to 150 cm/s (10 to 80cm/s in Rabbit Treadmill). Depending on the model it can have one or several lanes, each with its own independently electrified grid.

When the animal tires and stops while on the belt, it reaches the grid, where it receives a shock as an electrical stimulus to keep running.



WARNING: The grid is under voltage while the treadmill is in **RUN** mode.

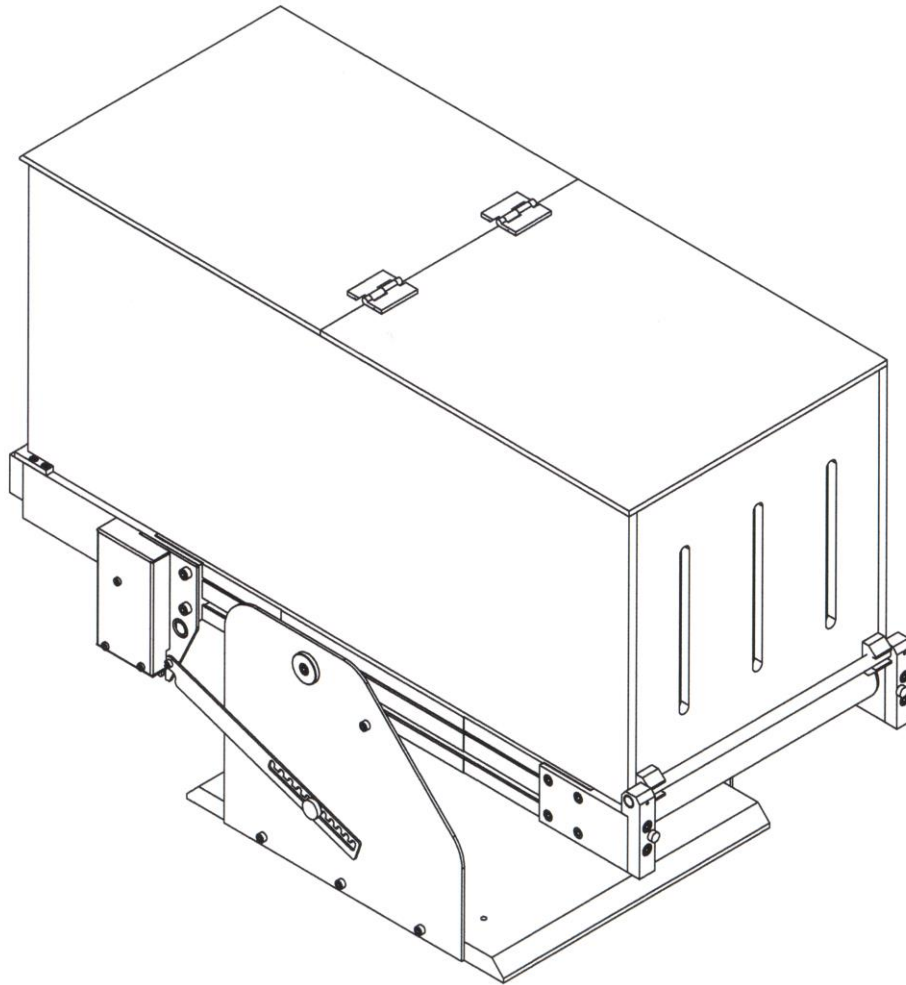


Figure 7. Rabbit Treadmill Belt.

It is important to keep the grid clean of animal waste. A dirty grid may cause the shock to be given when the animal is outside the grid, thus causing erroneous data in the experiment (erroneous number of shocks and time shock values). An inferior tray collects animal excrements.

The animal is kept in the lane with a transparent Perspex lid. There are open-air lids for normal treadmills and closed lids for metabolism studies, in which the treadmill is used together the Oxilet system.

8. EQUIPMENT DESCRIPTION

8.1. ONE & TWO-LANES CONTROL UNIT FRONT PANEL

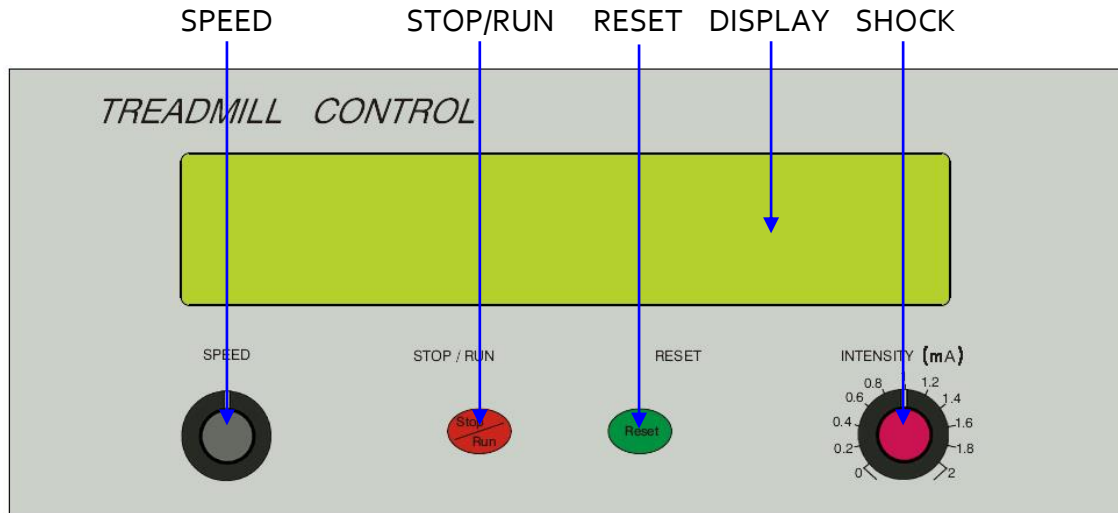


Figure 8. One and Two-lanes Control Unit Front Panel.

- **SPEED:** This potentiometer selects the belt speed from 5cm/s to 150cm/s in increments of 1cm/s (10cm/s to 80cm/s in Rabbit Treadmill). The speed value is shown on the display.
- **STOP/RUN:** Red button. When the belt is stopped, it begins to run by pressing this button and the word RUN is shown in the lower right corner of the display. By pressing the same button again the belt stops and STOP is shown in the lower right corner of the display.
- **RESET:** Green button. Counters in the display are reset to zero by pressing this button (experiment time, number of shocks, distance and time shock).
- **INTENSITY:** This potentiometer selects the shock intensity in the grid from 0 to 2mA RMS. Below 0.2mA the counters (number of shocks and time shock) will not increase when the animal reaches the grid.

8.2. FIVE-LANES CONTROL UNIT FRONT PANEL

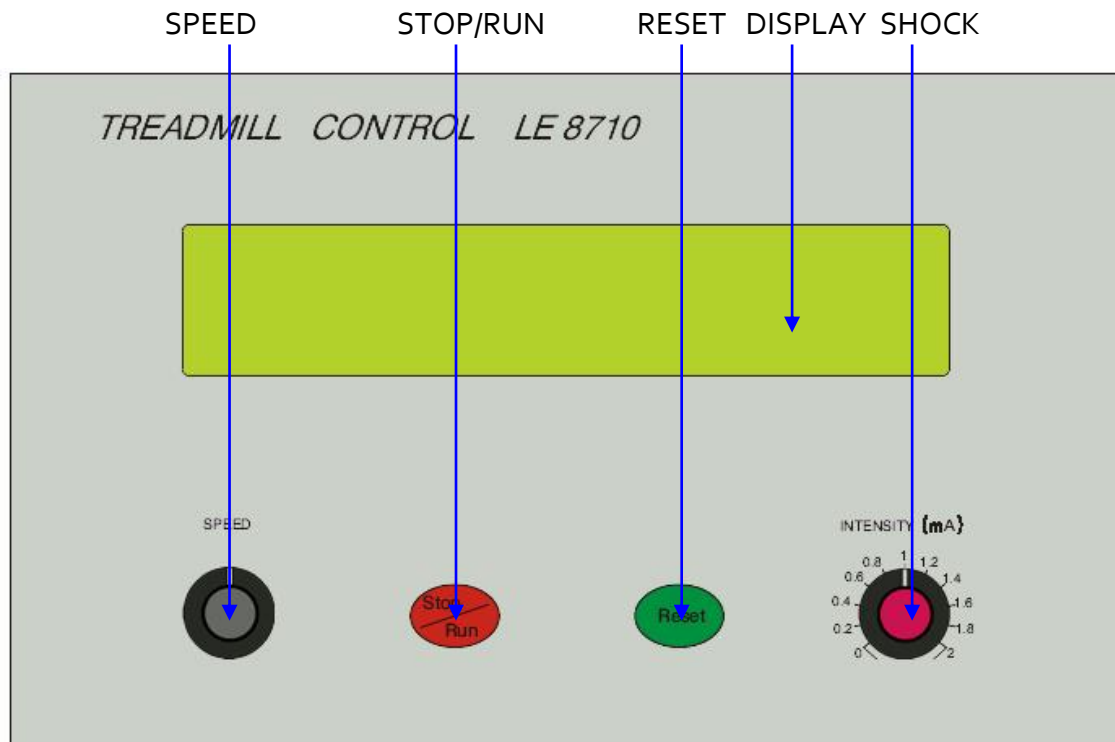


Figure 9. Five lanes Treadmill Control Unit Front Panel.

- **SPEED:** This potentiometer selects the belt speed from 5cm/s to 150cm/s in increments of 1cm/s. The speed value is shown on the display.
- **STOP/RUN:** Red button. When the belt is stopped, it begins to run by pressing this button and the word RUN is shown in the lower right corner of the display. By pressing the same button again the belt stops and STOP is shown in the lower right corner of the display.
- **RESET:** Green button. Counters in the display are reset to zero by pressing this button (experiment time, number of shocks, distance and time shock).
- **INTENSITY:** This potentiometer selects shock intensity in the grid from 0 to 2mA RMS. Below 0.2mA the counters (number of shocks and time shock) will not increase when the animal reaches the grid.

8.3. DISPLAY

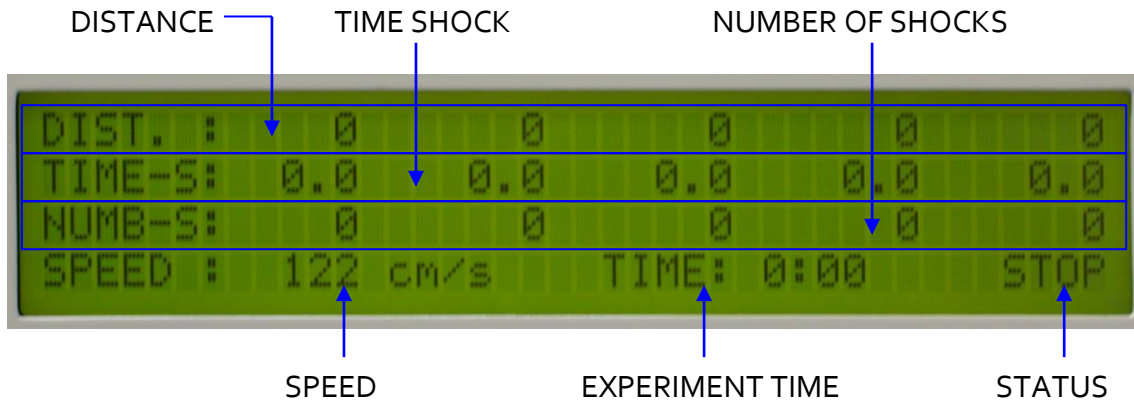


Figure 10. Front panel display.

The front panel display has 4 rows and 40 columns. The upper three rows display lane counters (Distance, Time Shock, Number of Shocks), with one counter for each lane. The lowest row displays Speed, Duration of Experiment and Status.

- **DISTANCE:** Distance run by the animal in the current experiment. This counter does not increase while the animal is on the grid, as it is not running.
- **TIME SHOCK:** Accumulated time in which the animal has received shock.
- **NUMBER OF SHOCKS:** Number of times that the animal reaches the grid and receives a shock. There is a filter to prevent the animal from jumping on the grid. This value will increase again if at least 0.4 seconds have passed between shocks received by the animal.
- **SPEED:** Selected speed. This value is modified with the potentiometer SPEED in the front panel. It can be set from 5cm/s to 150cm/s (10cm/s to 80cm/s in Rabbit Treadmill).
- **EXPERIMENT TIME:** This counter begins at zero when the RUN button is pressed and stops when the same button is pressed again.
- **STATUS:** This label indicates belt status: RUN when the belt is running and STOP when the belt is stopped.

8.4. ONE-LANE CONTROL UNIT REAR PANEL

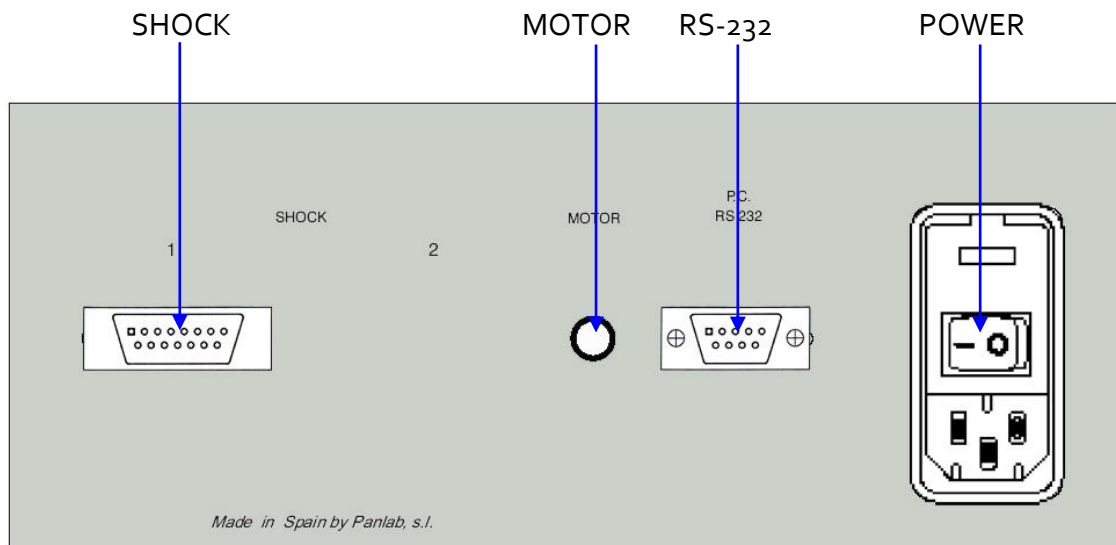


Figure 11. One-lane control unit: rear panel.

- **SHOCK:** DB15 female connector used to connect the control unit to the grid in the lane. It transmits the electrical shock to the grid.
- **MOTOR:** Panel jack male connector used to connect control unit to the motor that drives the belt.
- **RS 232:** DB9 female connector used to connect the control unit to a PC serial port. With **Sedacom** software (not included with the device), the information on the display can be sent to the computer, which can be used to control the treadmill.
- **POWER:** Power inlet, main switch and fuse-holder.

8.5. TWO-LANES CONTROL UNIT REAR PANEL

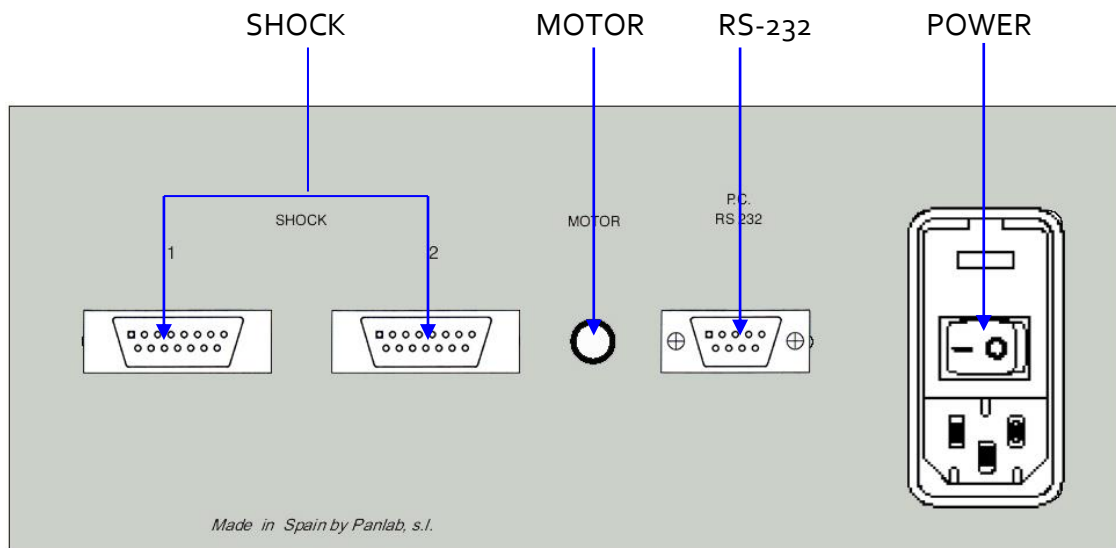


Figure 12. Two-lanes control unit: rear panel.

- **SHOCK:** DB15 female connector to connect control unit to the grid in the lane. It transmits the electrical shock to the grid. There is an independent shock connector and board for each lane.
- **MOTOR:** Panel jack male connector, is used to connect control unit to the motor that drives the belt.
- **RS 232:** DB9 female connector, used to connect control unit to PC serial port. With **Sedacom** software (not included with the device), the information on the display can be sent to the computer, which can be used to control the treadmill.
- **POWER:** Power inlet, main switch and fuse-holder.

8.6. FIVE-LANES CONTROL UNIT: REAR PANEL

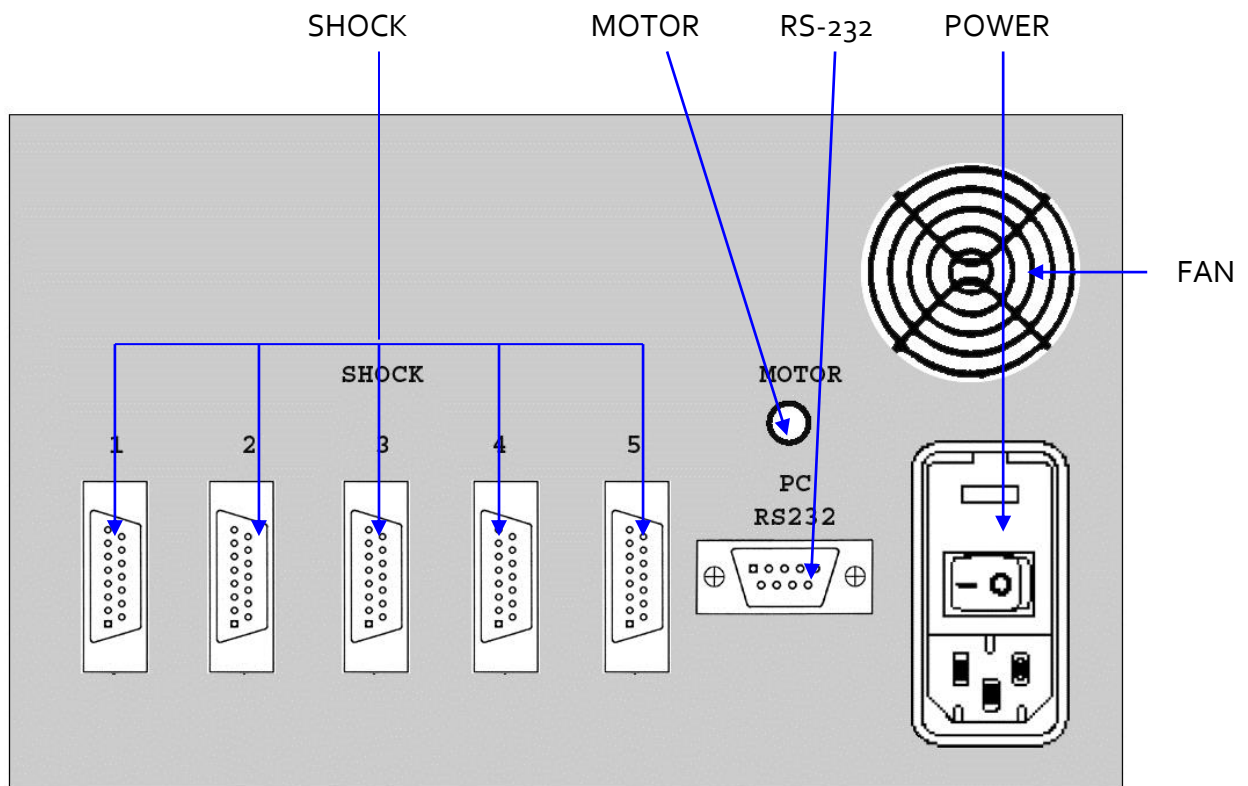


Figure 13. Five-lanes control unit: rear panel.

- **SHOCK:** DB15 female connector to connect control unit to the grid in the lane. It transmits the electrical shock to the grid. There is an independent shock connector and board for each lane.
- **MOTOR:** Panel jack male connector, used to connect control unit to the motor that drives the belt.
- **RS 232:** DB9 female connector used to connect the control unit to a PC serial port. With SEDACOM software (not included with the device), the information on the display can be sent to the computer, which can be used to control the treadmill
- **POWER:** Power inlet, main switch and fuse-holder.
- **FAN:** The fan extracts air from control unit in order to cool it.

8.7. TREADMILL BELT

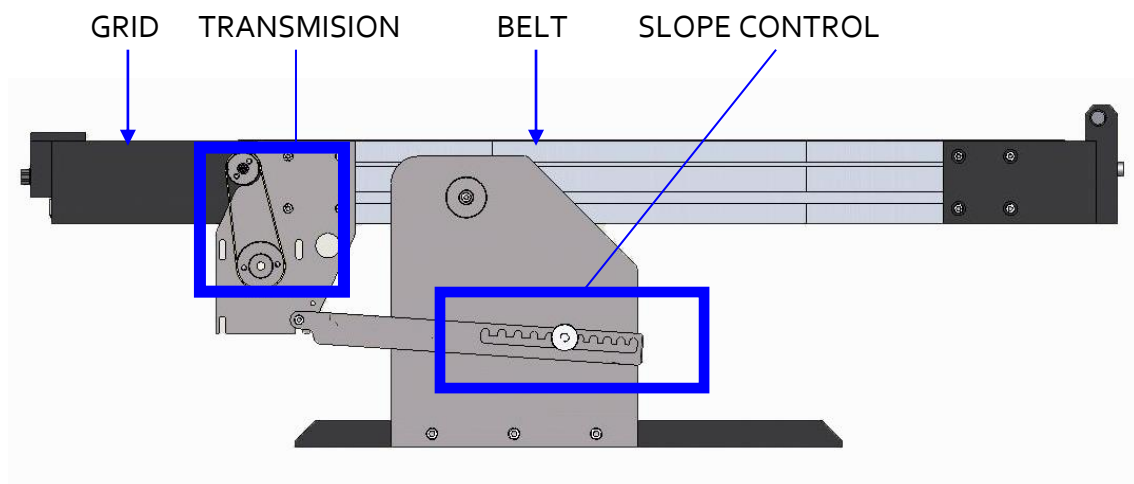


Figure 14. Treadmill belt.

- **GRID:** At the end of each lane there is an electrical grid to administer a shock as a stimulus for the animal to run.
- **TRANSMISSION:** The motor axis is connected to a toothed wheel. This wheel drives another one by means of a toothed belt. The latter wheel is connected to the treadmill belt axis to move the surface over which the animal runs.
- **BELT:** Surface over which the animal runs. It is common for all lanes. The lanes are separated by the transparent Perspex cover.
- **SLOPE CONTROL:** This mechanism controls the slope of the belt. The slope can be set from -25° to $+25^\circ$ in 5° increments.

8.7.1. One-lane mouse treadmill

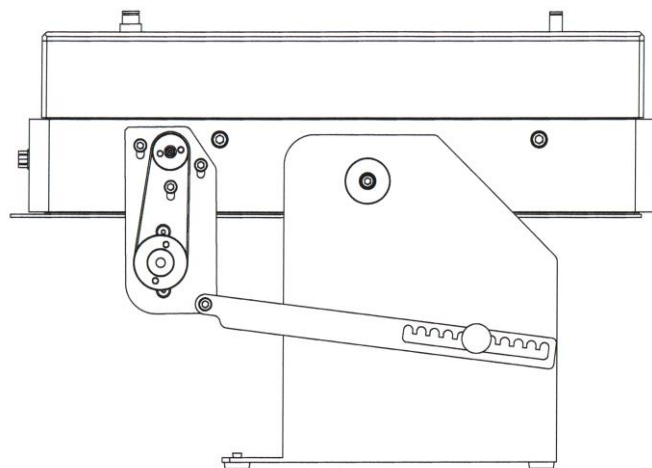


Figure 15. One-lane mouse treadmill.

8.7.2. One-lane rat treadmill

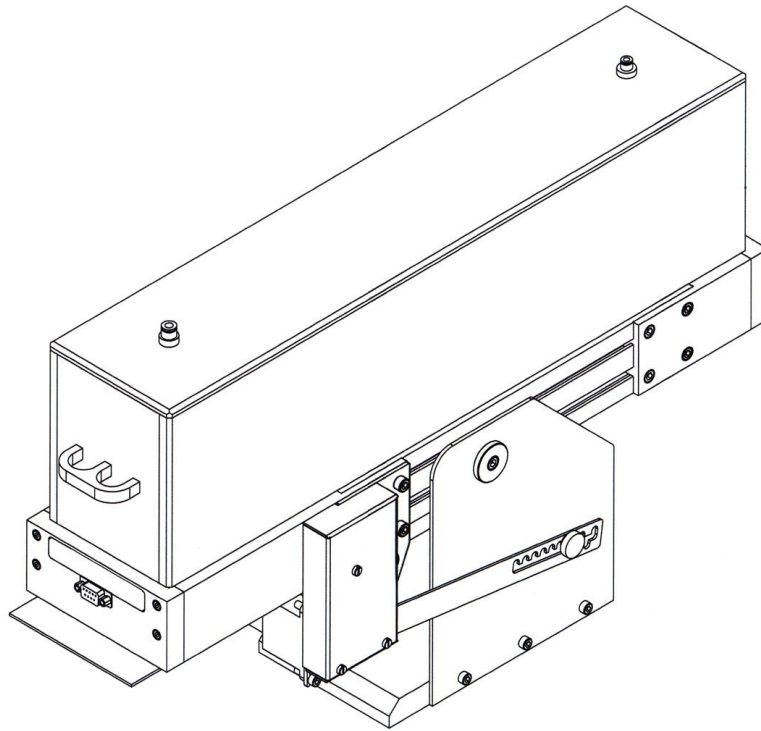


Figure 16. One-lane rat treadmill.

8.7.3. One-lane rabbit treadmill

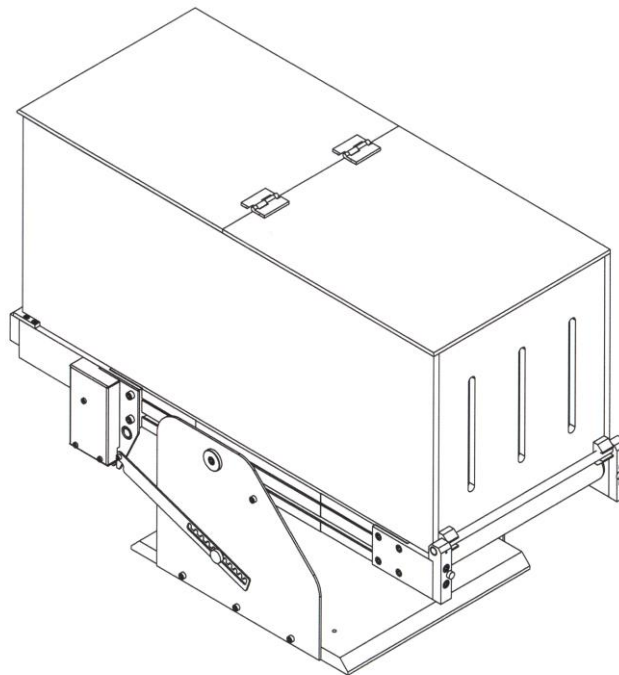


Figure 17. One-lane rabbit treadmill.

8.7.4. Two-lanes mouse treadmill

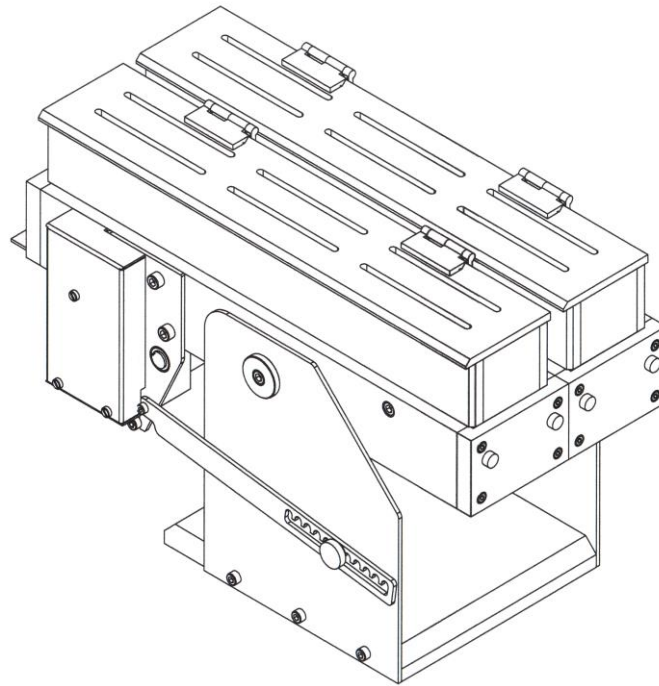


Figure 18. Two-lanes mouse treadmill.

8.7.5. Two-lanes rat treadmill

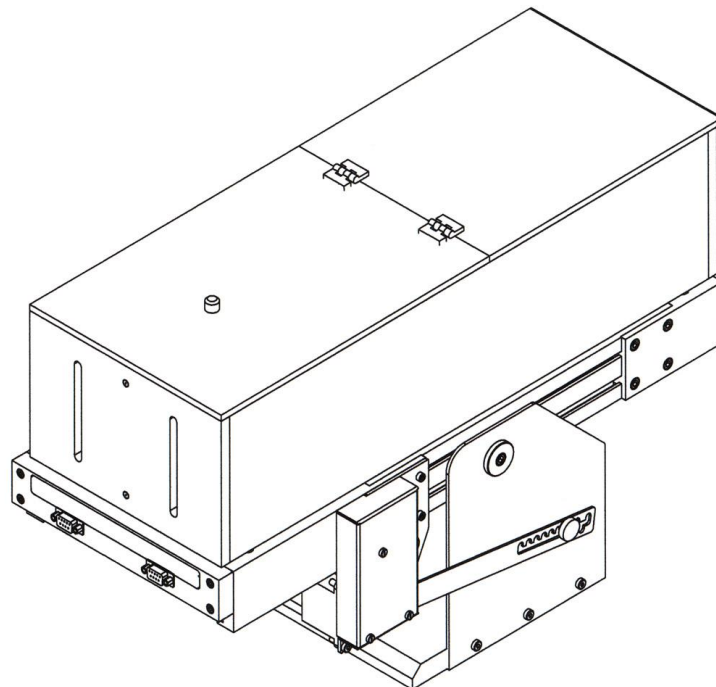


Figure 19. Two-lane rat treadmill.

8.7.6. Five-lanes mouse treadmill

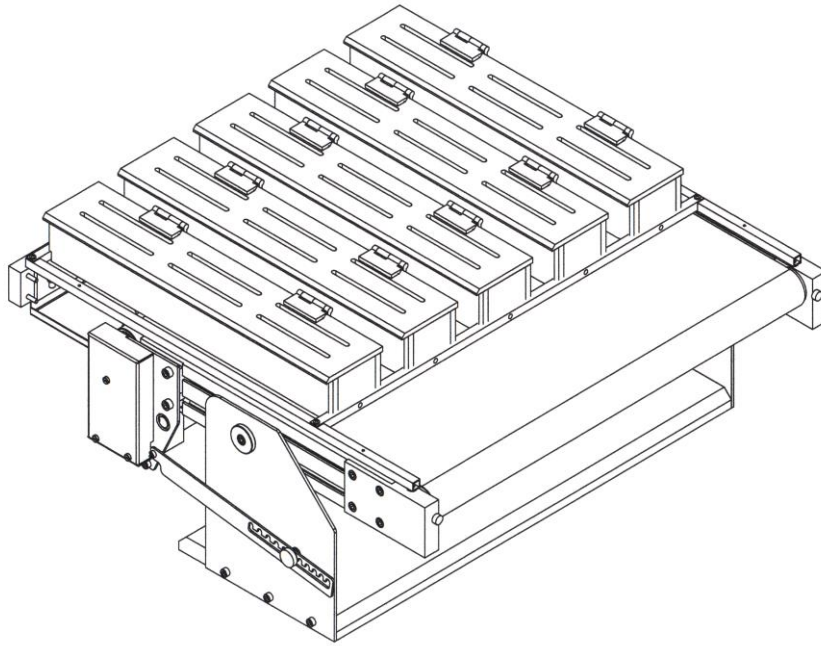


Figure 20. Five-lanes mouse treadmill.

8.7.7. Five-lanes rat treadmill

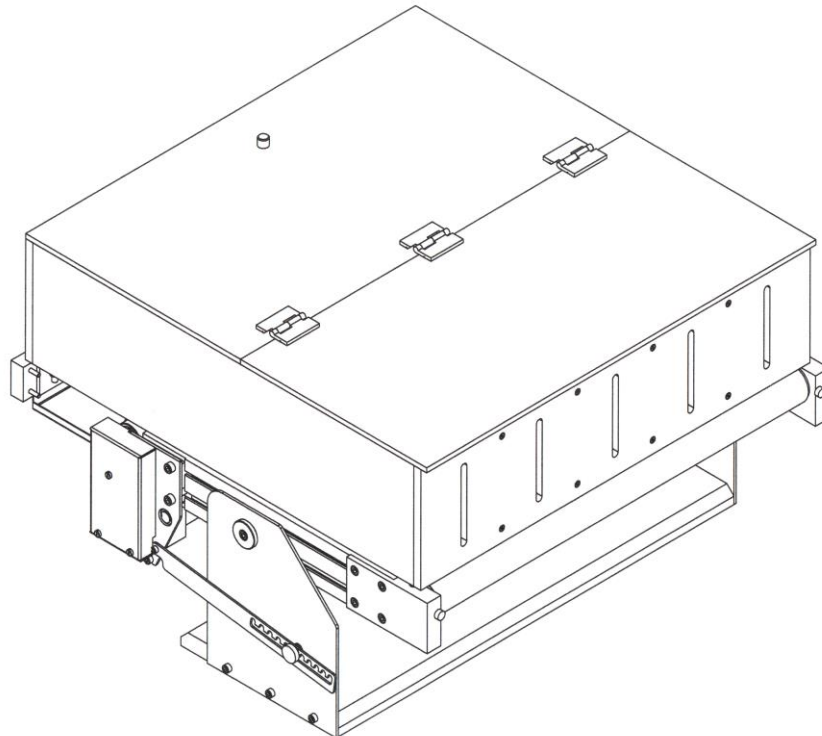


Figure 21. Five-lane rat treadmill.

9. EQUIPMENT CONNECTION

9.1. ONE-LANE MOUSE TREADMILL

In this case, the motor cable is connected directly to the motor.

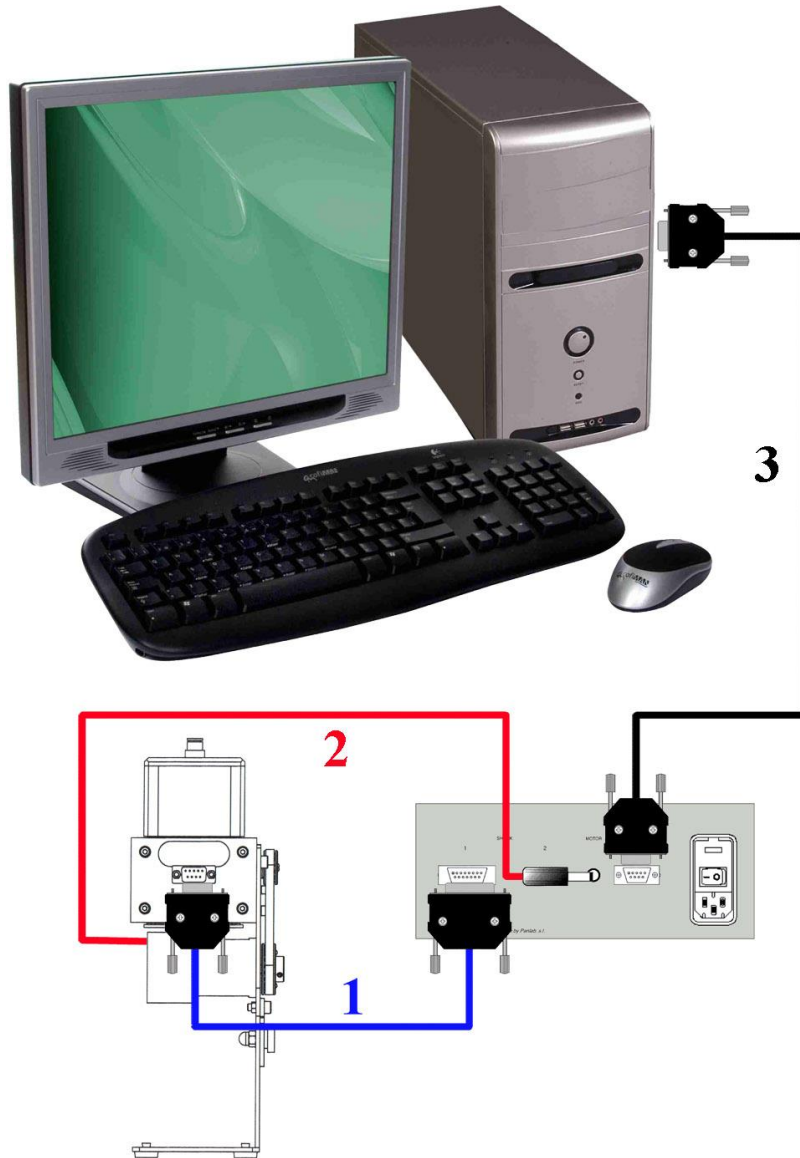


Figure 22. One-lane mouse treadmill connection.

The cables and connections are listed in the following table.

	FROM	TO	CABLE
1	LE8700 SHOCK 1	Treadmill grid	DB9 to DB15 cable
2	LE8700 Motor	Motor	Motor cable
3	LE 8700 RS-232	PC serial port	DB9 to DB9 cable
	LE8700 Power	AC power net	Power cord

9.2. ONE-LANE RAT & RABBIT TREADMILL

This model features a motor connector in the treadmill.

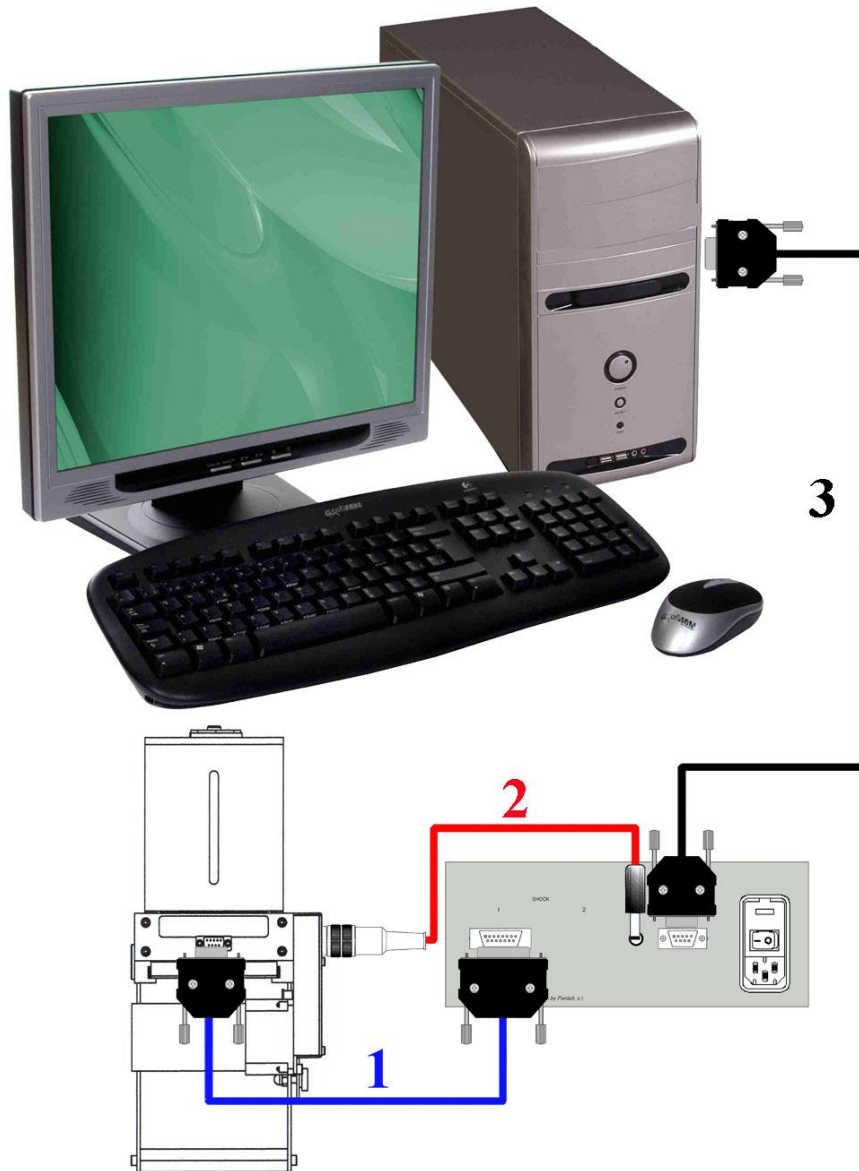


Figure 23. One-lane rat & rabbit treadmill connections.

The necessary connections are listed in the table below:

	FROM	TO	CABLE
1	LE8700 SHOCK 1	Treadmill grid	DB9 to DB15 cable
2	LE8700 Motor	Motor	DIN6 to jack female cable
3	LE 8700 RS-232	PC serial port	DB9 to DB9 cable
	LE8700 Power	AC power net	Power cord

9.3. TWO-LANES TREADMILL (RAT & MOUSE)

The schematic shows a mouse treadmill, but the connections are the same as for a rat treadmill.

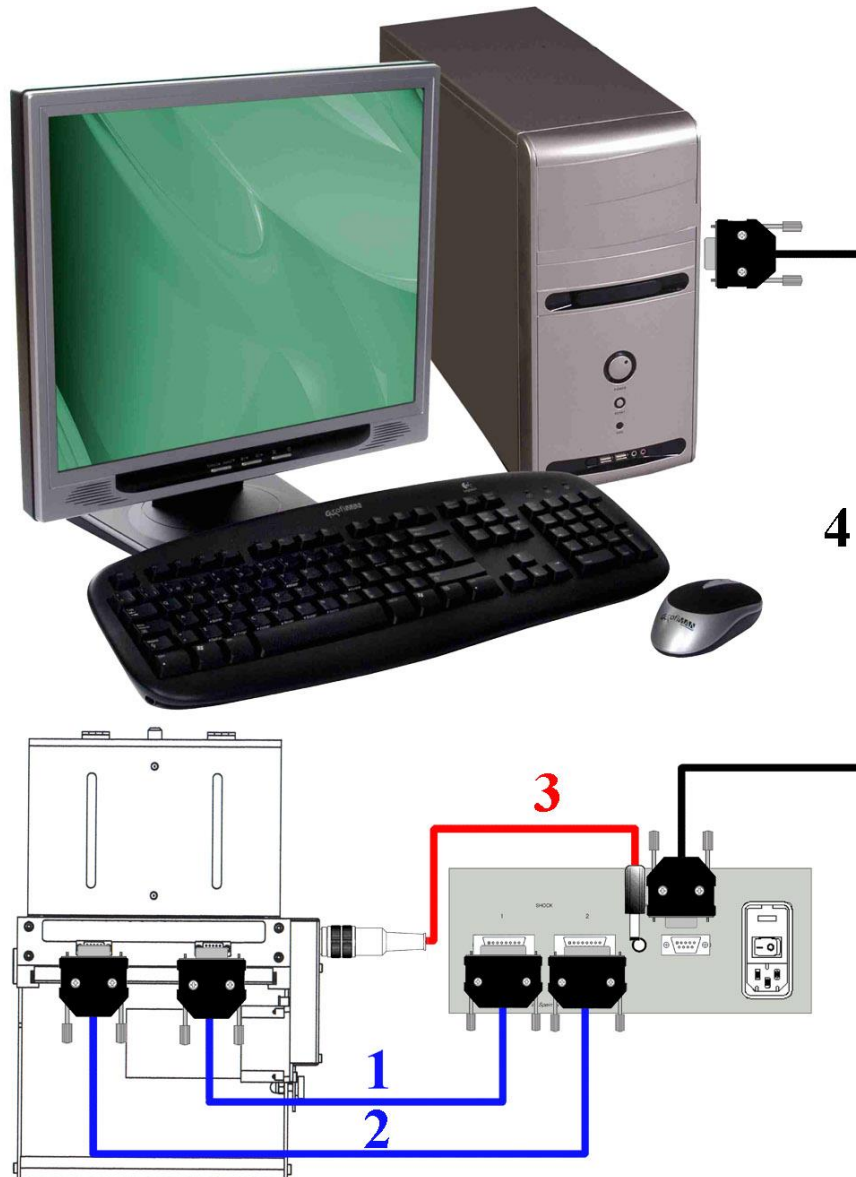


Figure 24. Two-lane treadmill connections.

The necessary connections are listed in the following table:

	FROM	TO	CABLE
1	LE8700 SHOCK 1	Treadmill grid 1	DB9 to DB15 cable
2	LE8700 SHOCK 2	Treadmill grid 2	DB9 to DB15 cable
3	LE8700 Motor	Motor	DIN6 to Jack female cable
4	LE 8700 RS-232	PC serial port	DB9 to DB9 cable
	LE8700 Power	AC power net	Power cord

9.4. FIVE-LANES TREADMILL (RAT & MOUSE)

The schematic shows a mouse treadmill, but the connections are the same as for a rat treadmill.

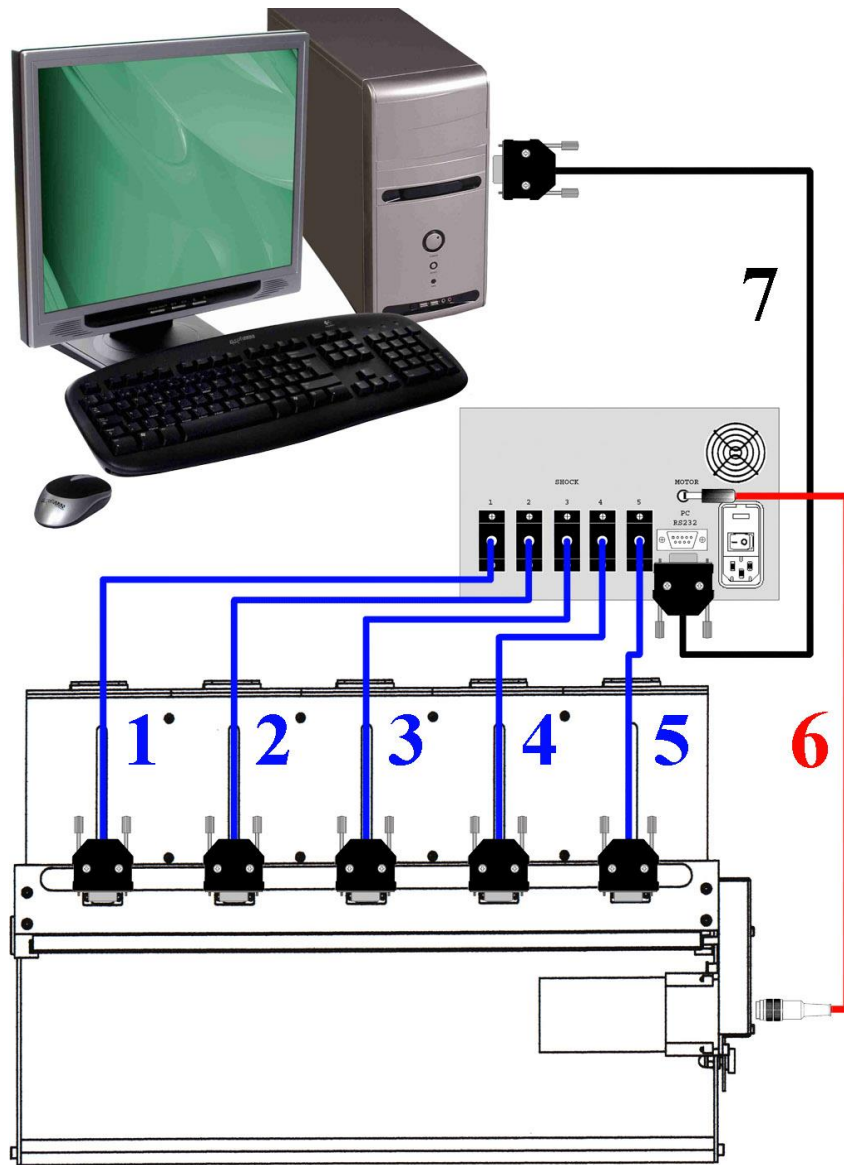


Figure 25. Five-lane treadmill connection.

The necessary connections are listed in the following table:

	FROM	TO	CABLE
1	LE8700 SHOCK 1	Treadmill grid 1	DB9 to DB15 cable
2	LE8700 SHOCK 2	Treadmill grid 2	DB9 to DB15 cable
3	LE8700 SHOCK 3	Treadmill grid 3	DB9 to DB15 cable
4	LE8700 SHOCK 4	Treadmill grid 4	DB9 to DB15 cable
5	LE8700 SHOCK 5	Treadmill grid 5	DB9 to DB15 cable
6	LE8700 Motor	Motor	DIN6 to Jack female cable
7	LE 8700 RS-232	PC serial port	DB9 to DB9 cable
	LE8700 Power	AC power net	Power cord

9.5. ELECTRICAL CONNECTIONS WORKING WITH OXYLET

The following diagram shows the electrical connections for measuring metabolism in Treadmill.

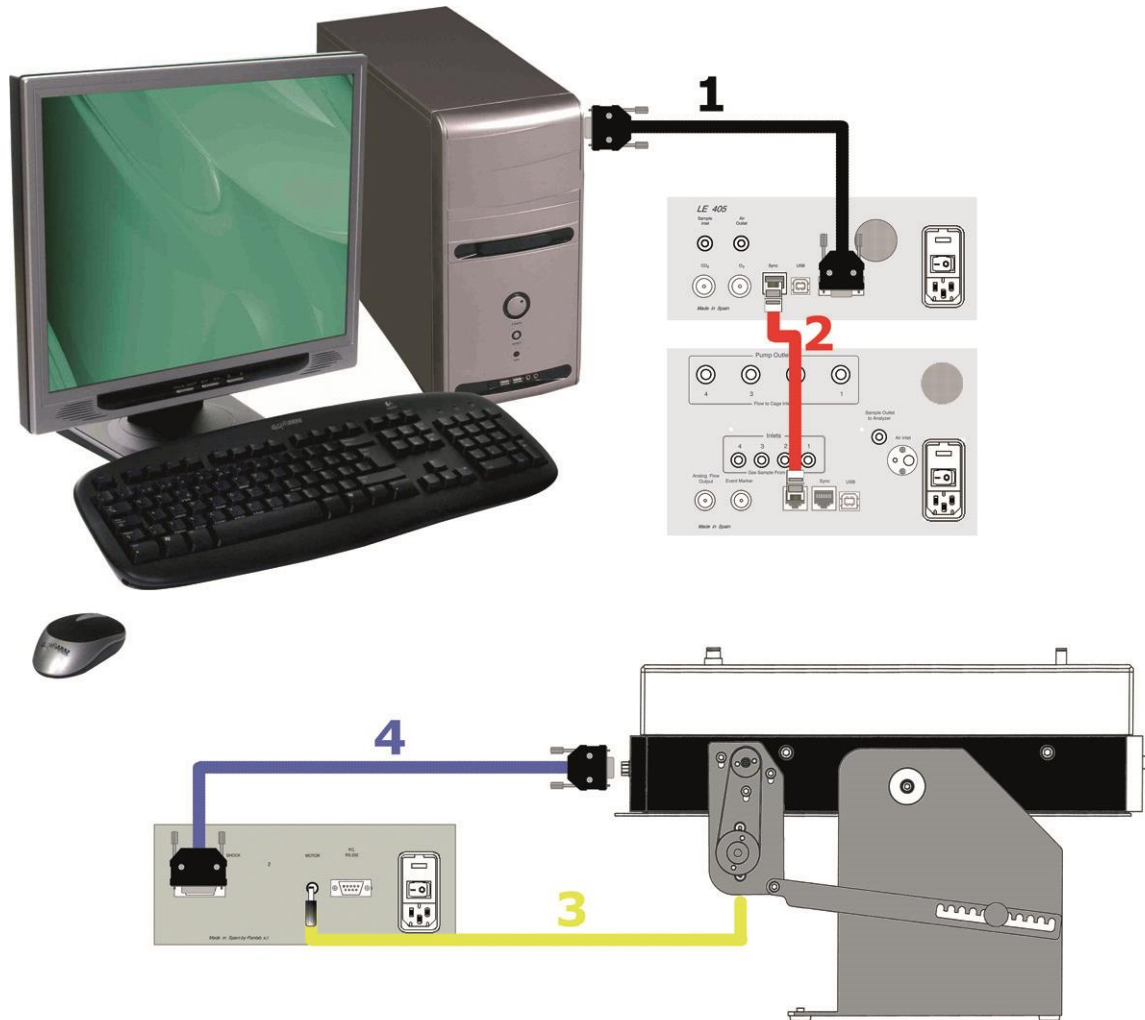


Figure 26. Electrical connections in metabolic measurements.

The following table shows the necessary connections.

	FROM	TO	CABLE
1	LE405 RS-232	Computer serial port	DB9 to DB9 cable
2	LE405 Sync	LE 400X Sync	telephonic
3	LE8700 Motor	Motor	Motor cable
4	LE8700 Shock	Grid	DB15 to DB9 cable

9.6. PNEUMATIC CONNECTIONS WORKING WITH OXYLET

The diagram below shows the pneumatic connections necessary to measure metabolism in Treadmill.

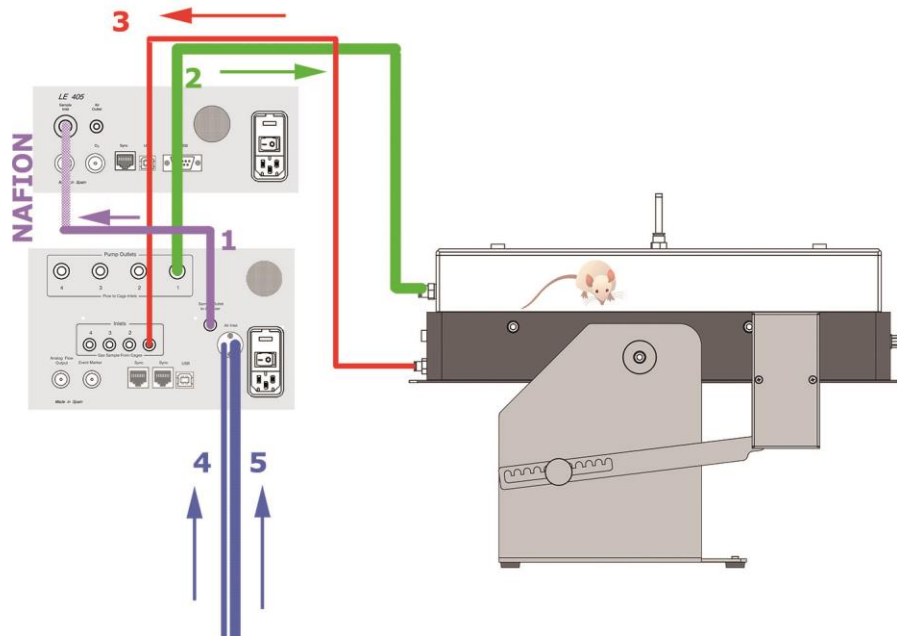


Figure 27. Pneumatic connections for measuring metabolism.

The arrows indicate the direction of airflow.

	FROM	TO	Diameter of Tube
1	LE400X Sample Outlet	LE405 Sample Inlet	4mm+Nafion
2	LE400X Cage Outlet	Treadmill Inlet	6mm
3	Treadmill Outlet	LE400X Cage Inlet	4mm
4	Air Inlet	Room	4,5mm
5	Air Inlet	Room	9,5mm



WARNING: The tubes 4 and 5 which respectively serve for sampling the room air and the air inlet to the pump must be placed as far away as possible from the fan outlet to prevent air pollution as electro valves system expels air from cages inside the equipment. Both tubes are attached and should be placed away from sources of air pollution.

By polluted air we mean breathing from both animals or people.

10. EQUIPMENT SET-UP

The procedure to set up the instrument is outlined below:

- 1 Set the SPEED and INTENSITY potentiometers to the minimum.

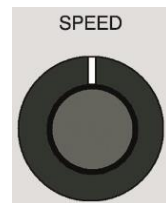


- 2 Place the animal(s) in their lane(s).

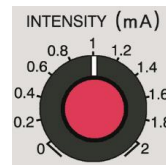
- 3 Press the STOP/RUN button to start the Run mode.



- 4 Adjust the SPEED to the desired value.



- 5 Adjust the intensity to a level at which the animal notices the shock.



- 6 After a short time for the animal to adapt to the belt and when all the animals are out of the grid, press the RESET button to reset all the counters.



- 7 Once the trial time has finished or once the desired DISTANCE has been run, press the STOP/RUN button again to activate STOP mode.



Once the SPEED and INTENSITY are set, you can accelerate the trial process:

- 1 Press RUN button.



- 2 Place one animal in each lane.

- 3 Press RESET button.



- 4 Once the trial TIME or DISTANCE have finished press the STOP button.





WARNING: Selecting the INTENSITY knob less than 0.2 mA while the equipment is really giving shock, the counters NUMB-S and TIME-S of the display do not count. A minimum current is needed to detect the arrival of the animal to the grid.

10.1. ALIGNMENT OF THE EXERCISE TREADMILL

Treadmill movement is supported by two rollers: the rear or drive roller and the front one.

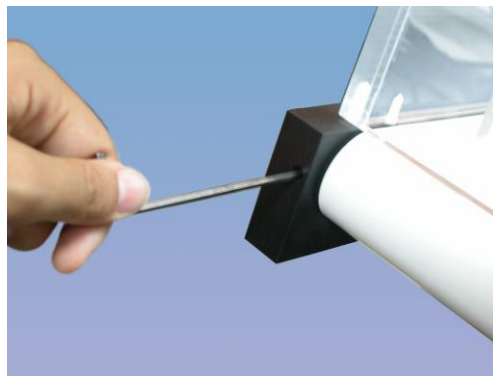


Figure 28. Allen screws.

The exercise treadmill has a tightening system which makes it possible to adjust the lateral movement of the belt: the 2 Allen-head screws at the sides (see Figure 28). Turning the screw clockwise increases the tension on the side where the screw is installed and turning it counter-clockwise decreases the tension of the belt on the side where the screw is installed.

For example, if the belt has moved to the left (as seen from the front) tension on the left side must be increased, or tension on the right side decreased to centre the belt again. The two screws can be adjusted until the desired position is attained. These adjustments should be made for high belt speeds.



WARNING: When working with closed Treadmills for metabolic measures, centring holes are covered to prevent entry of air from the outside. Once the treadmill belt is centred you should cover again these holes.

10.2. SLOPE SETTINGS

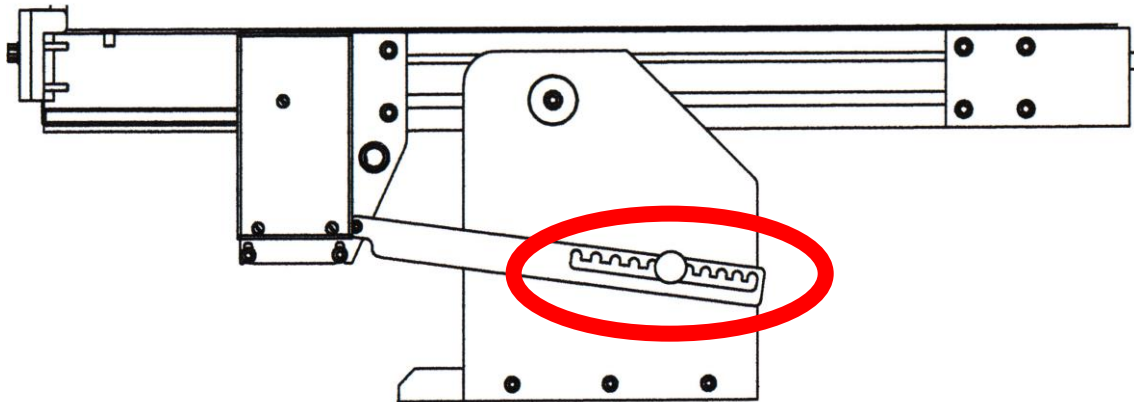


Figure 29. Slope control mechanism.

The treadmill slope can be easily modified with the slope mechanism. It allows positive and negative slope settings from -25° to $+25^{\circ}$ in increments of 5° .

Proceed as follows to adjust the belt slope:

1. Partially unscrew the fixing screw.
2. Move the slope lever up slightly to free it.
3. Set the belt to the necessary inclination.
4. Move the slope lever down to block the slope.
5. Tighten the fixing screw again to block the mechanism.

10.3. MAINTENANCE

The treadmill requires no special maintenance. It can be cleaned with alcohol-free detergents or derived products to avoid damaging its acrylic parts.

The rollers do not need to be greased or oiled as they are mounted on protected self-lubricating rollers. Nevertheless, areas where there may be friction should always be kept clean (using a paintbrush or a brush).

The entire mechanical exercise system is connected to a control unit by means of two kinds of leads. One transmits the energy to the drive motor and the other supplies the shock to the grid (there is one for each independent grid).



WARNING: the RS232 communication cable provided with the device is used for any connection of the device with associated software (**Sedacom**, etc.). When the device is used without software in first instance it needs to be preserved and kept in a secure place just in case the need of using the system with a software arises in the future. In this last case, if the user lost the cable, a new one should be purchased to his local sales delegate (ref. CONRS232). The warranty duration of this cable is the same than the warranty duration of the device.

10.4. GRID CLEANING

The grid should be cleaned after each experiment. When there is dirt in the grid the electrical shock flows through it. This will produce erroneous data during the experiment because the counters (Time shock, number of shocks and distance) will increase although the animal had not touched the grid.

In order to clean the grid you can use water and soap and then you must dry it. Grids sets can be unscrewed from Treadmill body in order to clean it, or simply use a wet brush to clean it.

Special care must be taken in cleaning the plastic between grids, because urine is a good electrical conductor and current flows through it.

10.5. CLEANING THE BELT

After each experimental session the belt should be cleaned with a damp cloth to remove any traces of urine and faeces.

10.6. CLEANING THE PERSPEX COVER

To clean the perspex cover you can use a slightly wet and then dry them with a dry cloth. If it is too dirty a cloth soaked in a soapy solution can be used to clean them, afterwards remove the foam with a wet cloth and finally dry them with a dry cloth.



WARNING: Never use alcohol or alcohol-based detergents to clean perspex parts, if used grooves will appear in the transparent plastic. This damage is not covered by the warranty.

10.7. TRAY CLEANING

In order to clean the tray it can be extracted from the guides, then throw away the excrements and clean it with water and foam, then dry it with a dry cloth and insert it again in the guides.

In metabolic treadmills the tray covers all the bottom of the treadmill and it is fixed with rubber magnet bands in its entire contour.

11. TRANSMISION OF DATA TO THE PC (SEDACOM)

The purchase of the **Sedacom** software is needed for transferring the data to a computer (please contact your local sales delegate for more information). The **Sedacom** software reference is composed by a USB Flash key containing the software Installer, a License for use and **Sedacom** User's Manual). Follow the next instructions:

- Please refer to the **Sedacom** User's Manual for instructions on how to install and use the software with the present device.
- A serial port (RS232) communication cable (provided with the present device) is needed for the connection of the present device to the computer in which the **Sedacom** software is installed. Please refer to the present User's Manual chapter 9 for instructions on how to connect this cable to the device.
- If the computer doesn't have any serial port, the RS232/USB adapter is needed (ref. CONRS232USB, contact your local provider for more information)

12. TROUBLESHOOTING

This table features instructions to solve the most frequent problems.

PROBLEM	SOLUTION
The equipment does not start up.	<ul style="list-style-type: none"> • Ensure that the voltage of mains is the same as that selected in the fuse holder. • Check the condition of the fuses.
The animal does not receive shock.	<ul style="list-style-type: none"> • Check that the DB9 to DB15 cables are connected between the grids and the control unit. • Check that the INTENSITY knob in the control unit is set to a value higher than 0mA. • Check that the grid is clean (urine and excrements can conduct current). • Check that control unit is in RUN mode. • When you operate the device with the program Sedacom and the modes are PC control or Protocol check if you have checked the checkbox Shock.
Shock counters count although the animal has not reached to the grid.	<ul style="list-style-type: none"> • Make sure the grid is clean (urine and faeces can carry the current). • Disconnect the DB9-DB15 cable from the grid and put the controller in RUN mode, if the problem persists this means a malfunction in the control unit, if the problem goes away it was dirt on the grid or a cable failure.
When the animal reaches the grid does not increment counters NUMB-S and TIME-S.	<ul style="list-style-type: none"> • Ensure that DB15-DB9 cables are connecting the grids and the control unit. • Ensure that the selected intensity is greater than 0.2 mA; below this value the counters will not count. • When you operate the device with the program Sedacom and the modes are PC control or Protocol check if you have checked the checkbox Shock.
When you turn on the control unit without pressing the RUN/STOP	<ul style="list-style-type: none"> • The transistor that controls the motor is shorted, contact technical service to

button the belt runs at maximum speed.	repair the equipment.
The belt moves to one side	<ul style="list-style-type: none"> • Centre the belt as explained in section 10.1.
The belt does not run.	<ul style="list-style-type: none"> • Make sure the motor cable is connected. • Make sure the device is in RUN mode. • If at low speed the belt does not run, but when speed increases it starts to run, the belt is too tight, loosen it and let it be centred as explained in section 10.1.
At low speeds the belt does not run uniformly.	<ul style="list-style-type: none"> • The belt is too tight, loosen it and let it be centred as explained in section 10.1.
At high speeds the belt is slow.	<ul style="list-style-type: none"> • Possibly the motor or the control unit are damaged. Contact the technical service for repair.
The belt hits some of the grids.	<ul style="list-style-type: none"> • Remnants of faces have been attached to the drive roller and produce a lifting of the belt that crashes to the grid. Loosen the belt with the tension screws and clean the dirt under it and in the transmission rollers.
The buttons STOP/RUN and RESET do not work.	<ul style="list-style-type: none"> • When you operate the device with the program Sedacom and the modes are PC control or Protocol these buttons are disabled. • If not contact with technical service in order to solve the problem.

13. PREVENTIVE MAINTENANCE

	EXPERIMENT	MONTHLY	BIANUAL
GRID CLEANING	<input checked="" type="checkbox"/>		
BELT CLEANING	<input checked="" type="checkbox"/>		
PERSPEX COVER CLEANING	<input checked="" type="checkbox"/>		
TRAY CLEANING	<input checked="" type="checkbox"/>		
BELT CENTERING ¹		<input checked="" type="checkbox"/>	
GENERAL MAINTENANCE IN FACTORY			<input checked="" type="checkbox"/>

¹ If the belt moves to one side, it will be necessary to center it immediately.

14. SPECIFICATIONS

POWER SUPPLY Input voltage: Frequency: Fuse: Maximum Power: Conducted Noise:	115 /230V~ 50/60 Hz 2 fuses 5mm*20mm 1A 250V Fast 50W EN55022 /CISPR22/CISPR16 class B
ENVIRONMENTAL CONDITIONS Operating temperature: Operating Relative Humidity: Storage temperature:	10°C to +40°C 0% to 85% RH, non-condensing 0°C to +50°C, non-condensing
COMUNICATIONS OUTPUT Standard Interface: Connector:	RS232C Delta 9 contacts female connector
DISPLAY COUNTERS: DISTANCE: SHOCK-TIME: NUMBER OF SHOCKS: EXPERIMENT TIME:	0 to 9999 m in steps of 1 m 0.0 to 999.9s in steps of 0.1s 0 to 9999 in steps of 1 0 to 99 min 59 sec.
BELT: LENGTH: Mouse: Rat: Rabbit: SPEED: Rats and Mice: Rabbits:	685 mm 926 mm 1326 mm 5 to 150 cm/s in steps of 1 cm/s 10 to 80 cm/s in steps of 1 cm/s
MOTOR Power: LE8708: Other models:	20W 33W
SHOCK Waveform Channels Intensity Impedance	Rectangular waveform with 8,3ms amplitude Six sequential channels at 20Hz Adjustable from 0 to 2mA RMS 160kΩ
DIMENTIONS Width x Height x Deep: 1 and 2 lanes control unit: 5 lanes control unit Weight: 1 lane control unit: 2 lanes control unit: 5 lanes control unit:	232mm*111mm*297mm 232mm*155mm*320mm 4,5kg 5kg 7,4kg

**DECLARACIÓN DE CONFORMIDAD
DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITÉ**

Nombre del fabricante: **Panlab s.l.u.**
 Manufacturer's name: www.panlab.com
 Nom du fabricant: info@panlab.com

Dirección del fabricante: **Energía, 112**
 Manufacturer's address: **08940 Cornellà de Llobregat**
 Adresse du fabricant: **Barcelona SPAIN**

Declaro bajo su responsabilidad que el producto: **Treadmill Control**
 Declares under his responsibility that the product:
 Déclare sous sa responsabilité que le produit:

Marca / Brand / Marque: **PANLAB**

Modelo / Model / Modèle: **LE8700, LE8706, LE8708, LE8709, LE8710, LE 8715**

Cumple los requisitos esenciales establecidos por la Unión Europea en las directivas siguientes:
 Fulfills the essential requirements established by The European Union in the following directives:
 Remplit les exigences essentielles établies pour l'Union Européenne selon les directives suivantes:

2006/95/EC	Directiva de baja tensión / Low Voltage / Basse tension
2004/108/EC	Directiva EMC / EMC Directive / Directive CEM
2012/19/EU	La Directiva de Residuos de Aparatos Eléctricos y Electrónicos (WEEE) / The Waste Electrical and Electronic Equipment Directive (WEEE) / Les déchets d'équipements électriques et électroniques (WEEE)
2011/65/EU	Restricción de ciertas Sustancias Peligrosas en aparatos eléctricos y electrónicos (ROHS) / Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (ROHS) / Restriction de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (ROHS)
2006/42/EC	Directiva mecánica / Machinery directive / Directive mécanique

Para su evaluación se han aplicado las normas armonizadas siguientes:
 For its evaluation, the following harmonized standards were applied:
 Pour son évaluation, nous avons appliqué les normes harmonisées suivantes:

Seguridad / Safety / Sécurité:	EN61010-1:2011
EMC:	EN61326-1:2012 Class B
FCC:	FCC47CFR 15B Class B
Safety of machinery:	EN ISO 12100:2010

En consecuencia, este producto puede incorporar el marcado CE y FCC:
 Consequently, this product can incorporate the CE and FCC marking:
 En conséquence, ce produit peut incorporer le marquage CE et FCC:



En representación del fabricante:
 Manufacturer's representative: **Carme Canalís**
 En représentation du fabricant: **General Manager**
Panlab s.l.u., a division of Harvard BioScience

Cornellà de Llobregat, Spain
 30/04/2014

(GB) Note on environmental protection:



After the implementation of the European Directive 2002/96/EU in the national legal system, the following applies:

Electrical and electronic devices may not be disposed of with domestic waste. Consumers are obliged by law to return electrical and electronic devices at the end of their service lives to the public collecting points set up for this purpose or point of sale. Details to this are defined by the national law of the respective country. This symbol on the product, the instruction manual or the package indicates that a product is subject to these regulations. By recycling, reusing the materials or other forms of utilising old devices, you are making an important contribution to protecting our environment.

(E) Nota sobre la protección medioambiental:



Después de la puesta en marcha de la directiva Europea 2002/96/EU en el sistema legislativo nacional, Se aplicara lo siguiente:

Los aparatos eléctricos y electrónicos, así como pilas y baterías, no se deben tirar a la basura doméstica. El usuario está legalmente obligado a llevar los aparatos eléctricos y electrónicos, así como pilas y baterías, al final de su vida útil a los puntos de recogida municipales o devolverlos al lugar donde los adquirió. Los detalles quedaran definidos por la ley de cada país. El símbolo en el producto, en las instrucciones de uso o en el embalaje hace referencia a ello. Gracias al reciclaje, a la reutilización de materiales i a otras formas de reciclaje de aparatos usados, usted contribuirá de forma importante a la protección de nuestro medio ambiente.

(F) Remarques concernant la protection de l'environnement :



Conformément à la directive européenne 2002/96/CE, et afin d'atteindre un certain nombre d'objectifs en matière de protection de l'environnement, les règles suivantes doivent être appliquées.

Elles concernent les déchets d'équipement électriques et électroniques. Le pictogramme "picto" présent sur le produit, son manuel d'utilisation ou son emballage indique que le produit est soumis à cette réglementation. Le consommateur doit retourner le produit usager aux points de collecte prévus à cet effet. Il peut aussi le remettre à un revendeur. En permettant enfin le recyclage des produits, le consommateur contribuera à la protection de notre environnement. C'est un acte écologique.

(D) Hinweis zum Umweltschutz:



Ab dem Zeitpunkt der Umsetzung der europäischen Richtlinie 2002/96/EU in nationales Recht gilt folgendes:

Elektrische und elektronische Geräte dürfen nicht mit dem Hausmüll entsorgt werden. Der Verbraucher ist gesetzlich verpflichtet, elektrische und elektronische Geräte am Ende ihrer Lebensdauer an den dafür eingerichteten, öffentlichen Sammelstellen oder an die Verkaufsstelle zurückzugeben. Einzelheiten dazu regelt das jeweilige Landesrecht. Das Symbol auf dem Produkt, der Gebrauchsanleitung oder der Verpackung weist auf diese Bestimmungen hin. Mit der Wiederverwertung, der stofflichen Verwertung oder anderer Formen der Verwertung von Altgeräten leisten Sie einen wichtigen Beitrag zum Schutz unserer Umwelt.

(I) Informazioni per protezione ambientale:



Dopo l'implementazione della Direttiva Europea 2002/96/EU nel sistema legale nazionale, ci sono le seguenti applicazioni:

I dispositivi elettrici ed elettronici non devono essere considerati rifiuti domestici. I consumatori sono obbligati dalla legge a restituire i dispositivi elettrici ed elettronici alla fine della loro vita utile ai punti di raccolta collerici preposti per questo scopo o nei punti vendita. Dettagli di quanto riportato sono definiti dalle leggi nazionali di ogni stato. Questo simbolo sul prodotto, sul manuale d'istruzioni o sull'imballo indicano che questo prodotto è soggetto a queste regole. Dal riciclo, e re-utilizzo del material o altre forme di utilizzo di dispositivi obsoleti, voi renderete un importante contributo alla protezione dell'ambiente.

(P) Nota em Protecção Ambiental:



Após a implementação da directiva comunitária 2002/96/EU no sistema legal nacional, o seguinte aplica-se:

Todos os aparelhos eléctricos e electrónicos não podem ser despejados juntamente com o lixo doméstico. Consumidores estão obrigados por lei a colocar os aparelhos eléctricos e electrónicos sem uso em locais públicos específicos para este efeito ou no ponto de venda. Os detalhes para este processo são definidos por lei pelos respectivos países. Este símbolo no produto, o manual de instruções ou a embalagem indicam que o produto está sujeito a estes regulamentos. Reciclando, reutilizando os materiais dos seus velhos aparelhos, esta a fazer uma enorme contribuição para a protecção do ambiente.